

**The 159th HENPIC seminar by Prof. Yi-Bo Yang,
ITP/CAS (中科院理论物理研究所), Feb. 24, 2022,
Thursday, 10:30am (Beijing time)**

Title: Hadron mass and its origin

Abstract: Quantum chromodynamics (QCD) claims that the major source of the nucleon invariant mass is not the Higgs mechanism but QCD energy momentum tensor trace anomaly, and further decomposition is favorable through different components of the QCD Hamiltonian. I will introduce the present lattice QCD progress on the hadron mass origin and discuss current challenges.

- [1] Yi-Bo Yang et al., Meson mass decomposition from Lattice QCD, Phys. Rev. D 91 (2015) 074516
- [2] Yi-Bo Yang et al., Proton mass decomposition from the QCD energy momentum tensor, Phys. Rev. Lett. 121 (2018) 21
- [3] W. Sun, Y. Chen, P. Sun, Yi-Bo Yang, Gluons in charmoniumlike states, Phys. Rev. D 103 (2021) 9
- [4] F. He, P. Sun, Yi-Bo Yang, Demonstration of the hadron mass origin from the QCD trace anomaly, Phys. Rev. D 104 (2021) 7

About the speaker: Yi-Bo Yang is currently an associate professor at ITP/CAS. He got his Ph.D from ITP/CAS in late 2010, and worked as a postdoc at IHEP/CAS, University of Kentucky, and Michigan state university. His research focuses on the strong-interaction origin of the hadron mass, spin and also their distributions inside the hadron. He also works on the lattice QCD software for the Domestic E-scale computers.